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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,031	01/21/2004	Wang Yueh	ITL 1074US (P18216)	3943

21906 7590 03/16/2005

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HOUSTON, TX 77024

EXAMINER

CHU, JOHN S Y

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/762,031

Applicant(s)

YUEH ET AL.

Examiner

John S. Chu

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This Office action is in response to the application filed January 21, 2004.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by ROESCHERT et al (5,302,488) or WEST et al (5,705,308).

The claimed invention is drawn to the following:

1. A method comprising:  
forming a photoresist by attaching a photoactive compound to a polymer backbone.
9. A photoresist comprising:  
a polymer backbone; and  
a photoactive compound attached to said backbone.

ROESCHERT et al '488 discloses a positive photoresist composition comprising a radiation sensitive polymer binder of poly(4-hydroxy)styrene and 3-methyl-4-hydroxystyrene, see Example 1 in column 12, line 63 – column 13, line 35. This disclosed example anticipates

Art Unit: 1752

the claimed invention as recited in claim 1 above for a method of attaching a photoactive compound to a polymer. For clarification, the disclosed naphthoquinone-2-diazide-4-sulfonyl side group recited in claim 1 is an alternative nomenclature for the claimed diazonaphthoquinone photoactive compound recited in claim 2.

WEST et al '308 discloses an photosensitive composition comprising a diazonaphthoquinone compound attached to poly(4-hydroxystyrene) for use in preparing lithographic printing plates, see Example 5 in column 8, line 65 – column 9, line 7. Here a conventionally positive working composition is processed in a manner to give a negative image wherein the composition is imagewise exposed to diode laser and subsequently flood expose with UV to give a negative pattern (areas exposed to the diode laser remain after development, which means a negative image is formed). The claimed method is anticipated wherein a photoresist composition is formed when the photosensitive poly(4-hydroxy)styrene is reacted with a naphthoquinone diazide sulfonyl chloride, thus giving a photosensitive or photoactive polymer.

3. Claims 1, 3-5, 7-9, 11-14, 16, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by ROESCHERT et al (5,326,826).

The claimed invention has been recited above and is included by reference.

ROESCHERT et al '826 discloses a radiation sensitive polymer containing a diazocarbonyl group as a photoactive group. The photoactive group is attached to a poly(3-methyl-4-hydroxystyrene) as seen in Example 1, column 16, line 35 – column 17, line 22. Here the reference meets the claimed invention by disclosing the presence of a photoactive group on a

Art Unit: 1752

polymer. The photoactive group is not the diazonaphthoquinone compound as recited in claims 2, 6, 10, 15 and 18, but does meet the scope for the recited term photoactive in claim 1.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over OBERLANDER et al (5,866,295), McCULLOUGH et al (6,218,083) or ISHIZUKA et al (6,824,947).

The claimed invention has been recited above and is included by reference.

Each of the cited references in the current rejection disclose a photosensitive composition comprising a teaching which suggests to the skilled artisan the use of a polymer having a diazonaphthoquinone photoactive group chemically attached to a polymer backbone, see column 5, lines 46-48 in OBERLANDER et al '295, see column 5, lines 28-30 in McCULLOUGH et al '083 and see column 11, lines 52-56 in ISHIZUKA et al '947.

Each of the reference cited above lack the use of a polymer having a photoactive group attached at the backbone in a working example.

It would have been *prima facie* obvious to one of ordinary skill in the art of positive photoresist composition comprising an NQD to 1) select as the photoactive component a ballast

Art Unit: 1752

compound of OBERLANDER et al having a quinonediazide photosensitive group attached to a polymer backbone of poly(4-hydroxystyrene), 2) select as the photoactive component a naphthoquinone diazide ester of poly(p-hydroxystyrene) of McCULLOUGH et al or 3) select the homopolymer or copolymer of p-hydroxystyrene esterified with 1,2-naphthoquinone-2-diazide-5-sulfonyl chloride with the reasonable expectation of same or similar results as recited in those references for superior wear resistance, high sensitivity and having wide exposure latitude.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

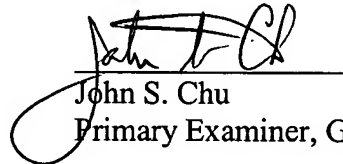
The fax phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR

Art Unit: 1752

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John S. Chu  
Primary Examiner, Group 1700

J.Chu  
March 6, 2005